**Software Development Life Cycle (SDLC)**

is a systematic process used for planning, designing, developing, testing, and deploying software.



**SDLC have 6 phases:**

**1)Analysis:**

In this phase, work on requirement gathering by meeting clients.

**Role in Software Development:**

Understand business needs and client requirements.

Analyze project plan.

**Input:**

Business requirements and Client needs.

**Output:**

Software requirements specification (SRS), Project Plan.

**Roles:**

**Product Owner ->** Managing and prioritizing the product.

**Project Manager ->** Manages the project and determines the project duration. Manage team schedules, budgets and risks. **(**Trello and Microsoft Project)

**Business Analyst ->** Gather and document requirements from clients. (Jira and Microsoft Excel)

**CTO (Chief Technology Officer) ->** Specifies the programs used to work on the project.

**2) Design:**

This phase focuses on UI/UX, colors, fonts and layout.

**Role in Software Development:**

Translates requirements into a UI/UX design for development.

**Input:**

Software Requirements Specifications (SRS).

**Output:**

UI/UX design.

Data flow diagrams (DFD).

**Roles:**

**System Architect ->** Designed the software architecture and defined the database and framework.

**UI/UX Designer ->** Design user interface and user experiences and create wireframes and prototypes (UI - Figma / UX - Wireframe).

**3) Development /Implementation:**

Developers write the source code based on the design and requirements (convert the design into code).

**Role in Software Development:**

Convert design into functional software.

**Input:**

UI/UX design

**Output:**

Executable files ready for testing.

**Roles:**

**Front-End Developers ->** Develop the user interface of the software. (MudBlazor)

**Back-End Developers ->** Develop the server-side logic, APIs and database instructions.

(Java and Docker)

**4) Testing:**

Test the software to ensure that it meets the requirements and works correctly.

**Role in Software Development:**

Detecting and fixing bugs before release.

Improve software performance, security, and usability.

**Input:**

Codes (Developed software)

**Output:**

Bug Reports.

Stable Software (software ready for deployment).

**Roles:**

**Solutions Architect ->** Test the color, font and size of the frontend developer.

**QA Engineer ->** Test software for bugs and performance issues. Check the codes on the front end. (Selenium)

**Testers or Quality Control ->** check the code on the backend.

**DevOps ->** manage Testing.

**5) Deployment:**

Deploy the software to a production environment and make it available to end-users.

**Role in Software Development:**

Ensure a smooth transition from development to production.

**Input:**

Fully tested software.

**Output:**

Live Software (accessible to users).

**Roles:**

**Data Administrator ->** Designs and manages database.

**DevOps ->** Manage Deployment. ( Azure, Google Cloud)

**6) Maintenance:**

This phase includes ongoing support, bug fixes, and updates to the software.

**Role in Software Development:**

Address user-reported issues and add new features.

**Input:**

Live software

**Output:**

Software Updates

Improved User Experience

**Roles:**

**Users ->** User feedback.

**Testers ->** Fixing bugs.

**Support managers ->** Provide technical support and updates.